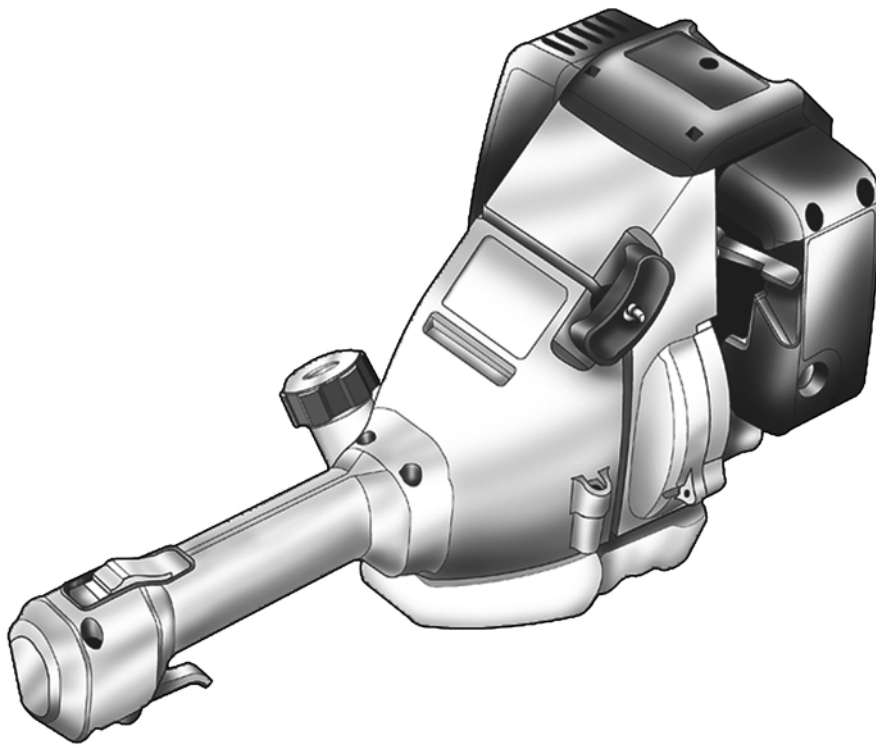


RYOBI®

990r

**OPERATOR'S
MANUAL**



MODEL NO. 990r

IMPORTANT MANUAL

DO NOT THROW AWAY

INTRODUCTION

THANK YOU

Thank you for purchasing this quality product. This modern outdoor power tool has been designed to provide you with many hours of useful service. You will find it to be a great labor-saving device.

This operator's manual provides you with easy-to-understand operating instructions. Read the entire manual and follow all of the instructions to keep your new power tool in top operating condition.

The other manual that came with your power tool, the parts manual, contains all of the information that you need to order parts.

PRODUCT REFERENCES, ILLUSTRATIONS AND SPECIFICATIONS

All information, illustrations and specifications in this manual are based on the latest product information available at the time of printing. We reserve the right to make changes at any time without notice.

SERVICE INFORMATION

Service on this power equipment within and after the warranty period can be performed by any Ryobi Authorized Service Dealer.

Dial **1-800-345-8746** in the United States and **1-800-265-6778** in Canada to obtain the listing of servicing dealers in your area.

DO NOT RETURN UNIT TO RETAILER.

 **NOTE: PROOF OF PURCHASE WILL BE REQUIRED FOR WARRANTY SERVICE.**

MAKE SURE THIS MANUAL IS READ AND CAREFULLY UNDERSTOOD BEFORE STARTING OR OPERATING THIS EQUIPMENT.

THIS PRODUCT IS COVERED BY ONE OR MORE OF THE US PATENTS LISTED BELOW: 5,241,932; 5,176,116; 4,779,405; 4,651,422; 4,589,742; 4,505,040; 4,463,498; 4,356,605; 4,342,235; 4,223,441. OTHER PATENTS PENDING.




 **NOTE: For users on U. S. Forest Land and in the states of California, Maine, Oregon and Washington.** All U.S. Forest Land and the state of California (Public Resources Codes 4442 and 4443), Oregon and Washington require, by law that certain internal combustion engines operated on forest brush and/or grass-covered areas be equipped with a spark arrester, maintained in effective working order. Check with your state or local authorities for regulations pertaining to these requirements. Failure to follow these requirements could subject you to liability or a fine. **This unit is factory-equipped with a spark arrester.** The replacement part number for the spark arrester is 180890.

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California Proposition 65 Warning:

 **WARNING** 
The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

CALIFORNIA EMISSION REGULATIONS

The engine of your lawn and garden care product meets the 1995 California emissions regulations. To ensure that your unit continues to meet these regulations, refer to the following information and instructions in this operator's manual.

These units are identified by the label on the engine of your product. A typical identification label is shown.

RYOBI® IMPORTANT ENGINE INFORMATION

ENGINE DISPLACEMENT: 26.2cc
ENGINE FAMILY: SN4026U1G4RA; EGR
THIS ENGINE MEETS
1995-1998 CALIFORNIA
EMISSION REGULATIONS FOR UTILITY
AND LAWN AND GARDEN EQUIPMENT
ENGINES. REFER TO OPERATOR'S
MANUAL FOR MAINTENANCE
SPECIFICATIONS AND ADJUSTMENTS.

SAFETY WARNINGS

THE PURPOSE OF SAFETY SYMBOLS IS TO ATTRACT YOUR ATTENTION TO POSSIBLE DANGERS. THE SAFETY SYMBOLS, AND THE EXPLANATIONS WITH THEM, DESERVE YOUR CAREFUL ATTENTION AND UNDERSTANDING. THE SAFETY WARNINGS DO NOT BY THEMSELVES ELIMINATE ANY DANGER. THE INSTRUCTIONS OR WARNINGS THEY GIVE ARE NOT SUBSTITUTES FOR PROPER ACCIDENT PREVENTION MEASURES.

SYMBOL MEANING



WARNING: Failure to obey a safety warning can result in injury to yourself and others.



NOTE: Advises you of information or instructions vital to the operation or maintenance of the equipment.

FUEL AND PRE-OPERATIONAL

- Fuel is extremely flammable and its vapors can explode if ignited. Always stop the engine and allow it to cool before filling the fuel tank. Do not smoke while filling the fuel tank. Keep sparks and open flames away from the area.
- Store fuel only in containers designed and approved for the storage of such materials.
- Pressure can build up in the fuel tank. Loosen the fuel tank cap slowly to relieve any pressure in the tank.
- Add fuel in a clean, well-ventilated area. Wipe up any spilled fuel immediately. If fuel has been spilled, allow it to dry completely before starting the engine.
- Move the trimmer at least 3 m (10 ft) from the fueling point before starting the engine.
- Thoroughly inspect the trimmer for loose or damaged parts before each use. Do not use until adjustments or repairs are made.
- Avoid accidental starting. Be in the starting position whenever pulling the starting rope.
- Keep all bystanders, especially children, and pets at least 10 m (33 ft) away from the area.
- Carefully inspect the areas to be cut. Remove all debris that could become entangled in the string or blade. Also remove any objects that could be thrown during cutting.
- Before starting, make sure the string head is not in contact with anything.
- Check the oil level before each use.

SAFETY WARNINGS

OPERATIONAL

- Wear safety glasses/goggles at all times when operating this trimmer.
- Dress properly. Do not operate this trimmer when barefoot or wearing open sandals. Always wear sturdy, rubber-soled footwear. The use of gloves, ear/hearing protection and long pants are recommended.
- Do not wear loose fitting clothing or articles such as scarves, strings, chains, ties, etc. because they could get drawn into the air intake. Also make sure long hair does not get drawn into the air intake.
- Keep hands, face, and feet away from all moving parts. Do not attempt to touch or stop the string when it is rotating.
- Do not touch the muffler or cylinder. These parts get extremely hot from operation and remain hot for a short time after the equipment is turned off.
- Always hold the trimmer with both hands when operating. Keep a firm grip on both the front and rear handles or grips.
- Operate this trimmer only in a well-ventilated area -outdoors. Carbon monoxide exhaust fumes can be lethal in a confined area.
- If you strike or become entangled with a foreign object, stop the engine immediately and check for damage. Repair any damage before further operation is attempted. Do not operate the trimmer with loose or damaged parts.
- Use the right tool. Do not use this trimmer for any job except that for which it is intended.
- Do not force the tool at a rate faster than it is able to cut effectively.
- Do not overreach. Keep proper footing and balance at all times.
- Always remain alert. To prevent injury to yourself and others, do not operate this trimmer if you are fatigued.
- Do not operate the engine faster than the speed necessary to cut, trim or edge. Do not run the engine at high speed when not cutting.
- Do not extend the trimming line beyond the length specified in this manual.
- Always stop the engine when cutting is delayed or when walking from one cutting location to another.
- Use only genuine replacement parts when servicing this trimmer. These parts are available from your authorized dealer. The use of non-standard parts, or other accessories or attachments not designed for this trimmer, could result in serious injury to the user or damage to the trimmer.
- Do not operate the unit while under the influence of drugs, alcohol, or any medication.

OTHER SAFETY WARNINGS

- Store the trimmer in an appropriate and dry location to prevent unauthorized use and damage.

SAFETY WARNINGS FOR THE BRUSH BLADE

DURING USE

- Observe the safety warnings on page 3.
- Always use the shoulder strap when using the brush blade accessory.
- Keep the J-handle between the operator and cutting head at all times.
- Do not under any conditions cut with the blade located over 76.2 cm (30 inches) or more above the ground level.
- Scything should be done with extreme care and caution.
- For operation with the standard 4-tooth blade, do not cut anything thicker than 13 mm (1/2 inch) or a violent kickback could occur.
- Do not attempt to touch or stop the blade when it is rotating.
- Do not run the unit at high speed when not cutting.
- If you strike or become entangled with a foreign object, stop the engine immediately and check for damage. Have any damage repaired before further operation is attempted. Do not operate unit with a bent, cracked or dull blade.
- Keep the unit clean of vegetation and other materials. They may become lodged between the blade and guard.
- Stop the engine IMMEDIATELY if you feel excessive vibration. Vibration is a sign of trouble. Inspect thoroughly for loose nuts, bolts or damage before continuing. Repair or replace affected parts as necessary.



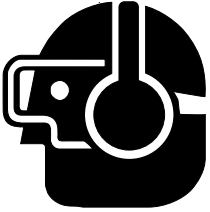



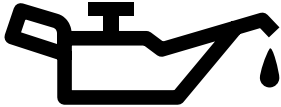

AFTER USE

- Clean blades with a household cleaner to remove any gum buildup. Then oil the blades with machine oil to prevent rust.
- Store the unit in an appropriate area to protect the blade from unauthorized use or damage.


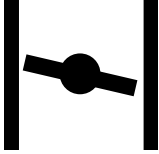
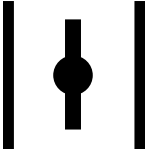

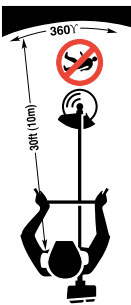
SAFETY WARNINGS (Continued)

SAFETY AND INTERNATIONAL SYMBOLS

This operator's manual describes safety and international symbols and pictographs that may appear on this product. Read the operator's manual for complete safety, assembly, operating and maintenance and repair information.

SYMBOL	SIGNIFICATION
	<ul style="list-style-type: none"> • SAFETY ALERT SYMBOL. Indicates caution, warning or danger. May be used in conjunction with other symbols or pictographs.
	<ul style="list-style-type: none"> • READ OPERATOR'S MANUAL. Failure to follow operating instructions and safety precautions in operator's manual can result in serious injury. Read operator's manual before starting or operating this unit.
	<ul style="list-style-type: none"> • WEAR EYE AND HEARING PROTECTION. Warning. Thrown objects and loud noise can cause severe eye injury and hearing loss. Wear ear and eye protection when operating this unit.
	<ul style="list-style-type: none"> • FOR SERVICE INFORMATION, CALL: USA: 1-800-345-8746 CANADA: 1-800-265-6778
	<ul style="list-style-type: none"> • IGNITION / POWER SWITCH. ON / START / RUN
	<ul style="list-style-type: none"> • IGNITION / POWER SWITCH. OFF OR STOP
	<ul style="list-style-type: none"> • INDICATES OIL. Refer to operator's manual for the proper type of oil.
	<ul style="list-style-type: none"> • UNLEADED FUEL. Always use clean, fresh unleaded fuel.

SAFETY WARNINGS (Continued)

SYMBOL	SIGNIFICATION
	<ul style="list-style-type: none"> • PRIMER BULB. Push primer bulb, fully and slowly, 5 to 7 times.
	<ul style="list-style-type: none"> • CHOKE CONTROL. FULL CHOKE position.
	<ul style="list-style-type: none"> • CHOKE CONTROL. PARTIAL CHOKE position.
	<ul style="list-style-type: none"> • CHOKE CONTROL. RUN position.
	<ul style="list-style-type: none"> • THROWN OBJECTS AND ROTATING CUTTER CAN CAUSE SEVERE INJURY. Warning. Do not operate without guard in place. Keep away from rotating cutter.
	<ul style="list-style-type: none"> • BRUSHCUTTERS – REPLACE DULL BLADE. Do not sharpen the brush blade. Sharpening the blade can cause the blade tip to break off while in use. This can result in severe personal injury.
	<ul style="list-style-type: none"> • BRUSHCUTTER SAFETY. Warning. Thrown objects and rotating cutter can cause severe injury. Keep bystanders, especially children and pets, at least 10 m (30 feet) away from the cutting area. Plastic string guard must be used when using the string head.

ASSEMBLY INSTRUCTIONS

ADJUSTING THE J-HANDLE

The J-handle is shipped completely assembled on Model 990r (Fig. 1). Use the following instructions to adjust the J-handle to the correct operating position.

1. Loosen the four (4) mounting screws on the J-handle. It is not necessary to remove the screws.
2. Slide the J-handle through the clamp until the arrow / white line on the decal touches the clamp assembly (Fig. 2).
3. Position the handle grip as desired (forward and back) and tighten the mounting screws evenly.

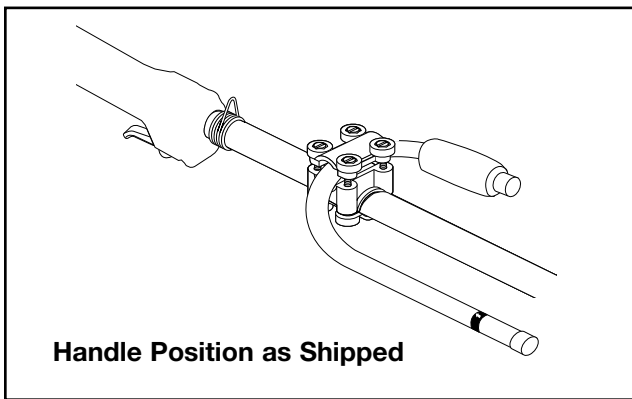


Fig. 1

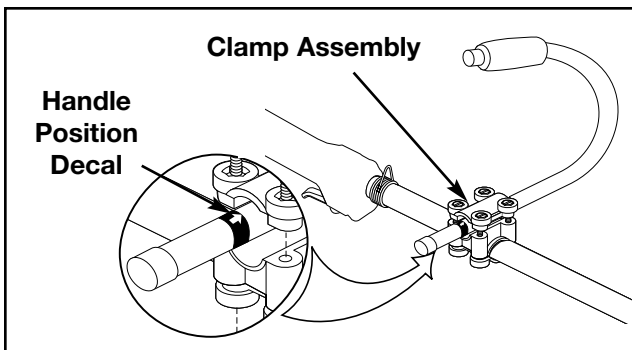


Fig. 2

INSTALLING THE SHOULDER STRAP

Your unit is equipped with a shoulder strap pad. To install the pad onto the shoulder strap, use the following instructions.

1. Wrap the end of the strap over a blunt object, i.e. ruler (Fig. 3).
2. Push the strap through the pad (Fig. 3). Remove the object..

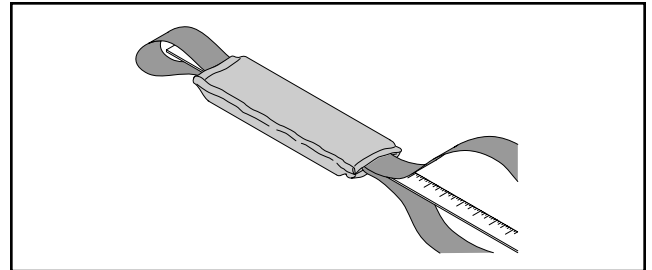
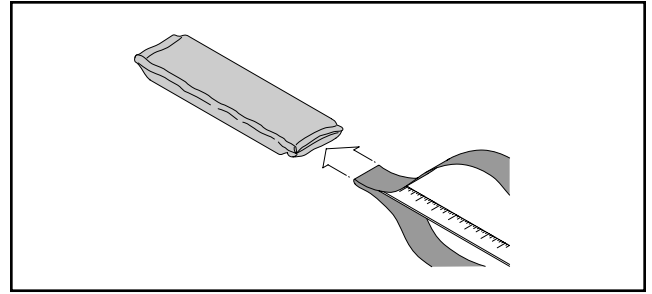


Fig. 3

To install the shoulder strap, use the following instructions.

1. Take the end of the shoulder strap without the buckle and push it through the ring on the snap.
2. Loop the strap through the buckle (Fig. 4).

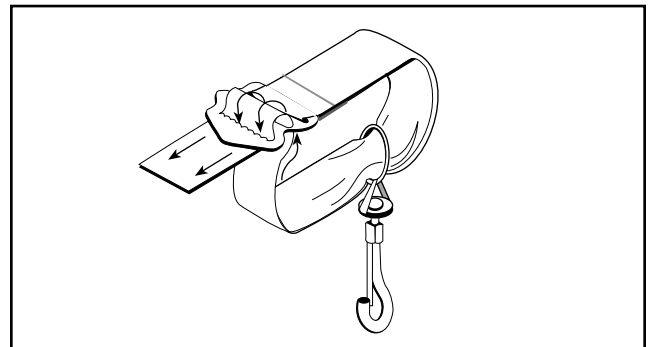


Fig. 4

3. Snap the shoulder strap onto the wire connector (Fig. 5). Adjust the length of the strap as desired.

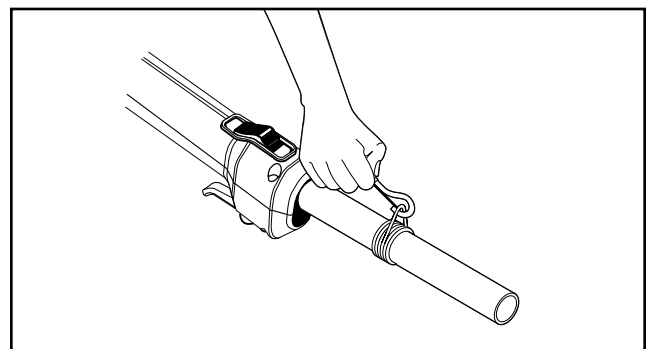


Fig. 5

ASSEMBLY INSTRUCTIONS (Continued)

INSTALLING THE BRUSH BLADE

1. Remove the line guard.
2. Insert the locking rod into the locking rod slot. Rotate the line spool **clockwise**. Remove the line spool and retainer washer from the shaft (Fig. 6).

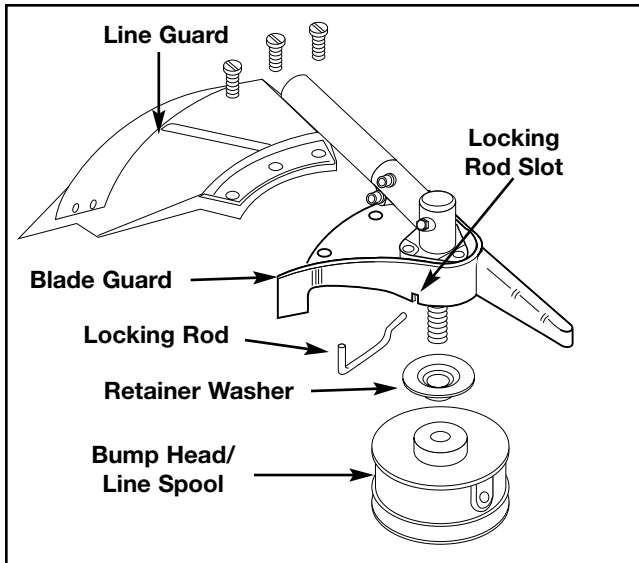


Fig. 6

3. Make sure that you have all of the parts necessary to install the brush blade (Fig. 7). Do not remove the blade tooth cover off of the blade. Always wear gloves while handling or installing the blade.

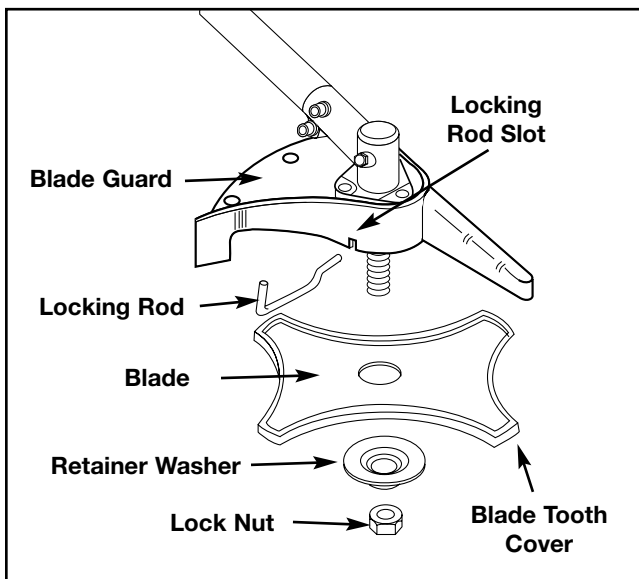


Fig. 7

4. Install the blade, washer, and lock nut. Insert the locking rod into the locking rod slot (Fig. 7). Make sure that the blade stays flat against the washer while tightening the lock nut **counterclockwise** until it is finger-tight.
5. **If you have a torque wrench**, tighten the lock nut to **225-250 in•lb (25.3-28.1 N•m)**, while holding the locking rod in the locking rod slot (Fig. 7).

If you do not have a torque wrench, thread the lock nut onto the brush blade **by hand** as tightly as possible (Fig. 8). Using an open-ended wrench, rotate the nut **1/2 - 3/4 of a full turn** (minimum) (Fig. 9). The torque of the nut should be within the required specifications of **225-250 in•lb (25.3-28.1 N•m)**.

The blade tooth cover can now be removed.

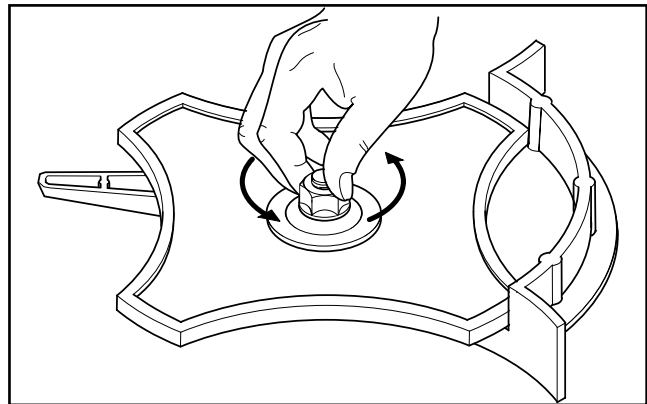


Fig. 8

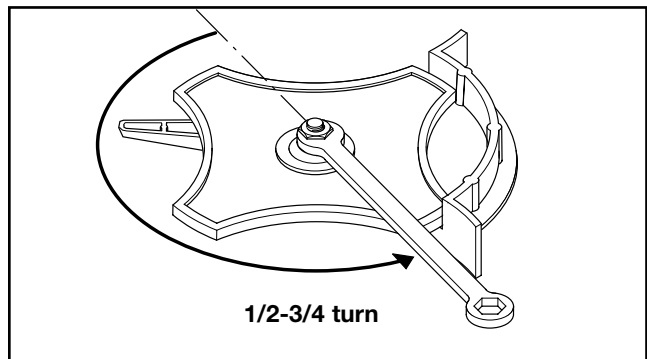


Fig. 9

ASSEMBLY INSTRUCTIONS (Continued)

- When assembling the brush blade, the blade edge should line up with the blade locating mark on the casting (Fig. 10). The brush blade should be within a blade thickness of the mark. If the blade isn't lined up correctly, refer to Fig. 7 for reassembly.

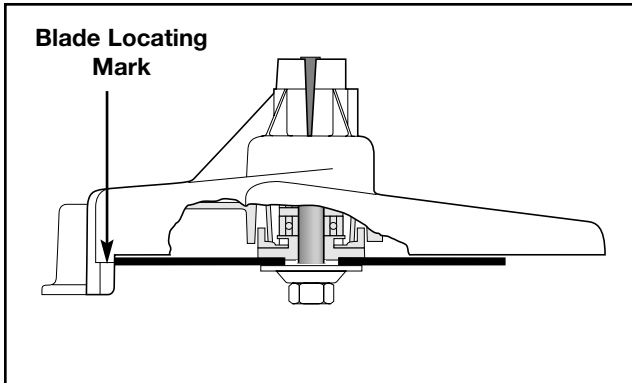


Fig. 10



WARNING

Make sure the blade is flat against the washer after the lock nut is tightened. If the blade is off-center, the trimmer will be damaged by vibration, and the blade may fly off. Failure to obey this warning may cause injury to yourself or others.

INSTALLING THE LINE SPOOL

- Install the blade guard over the brush blade. Insert the locking rod into the locking rod slot. Loosen the lock nut by turning it **clockwise** (Fig. 7).
- Remove the lock nut, retaining washer and brush blade.
- Make sure that you have all of the necessary parts to install the line spool (Fig. 6).
- Insert the locking rod tool into the locking rod slot and place the washer on the shaft (Fig. 6). Screw the spool **counterclockwise** onto the shaft.
- Install the line guard using three (3) screws (Fig. 6). Tighten the screws securely.

ASSEMBLY INSTRUCTIONS (Continued)

OPERATING THE SPLIT BOOM[®] COUPLER

Model 990r is equipped with a Split Boom[®] coupler, which enables optional attachments to be installed on this unit.

The optional attachments are:

Sweeper/Blower	SB720r
Vacuum	LV720r
Edger	LE720r
Cultivator	GC720r
Straight Shaft Trimmer	SS720r
Curved Shaft Trimmer	CS720r
Tree Pruner	TP720r

Removing the Lower (Attachment) Boom

NOTE: To make removing the boom easier, place the unit on the ground or on a table.

1. Loosen the wing screws (Fig. 11).
2. Push the release button (Fig. 11).
3. Pull the lower boom straight out of the coupler (Fig. 12).

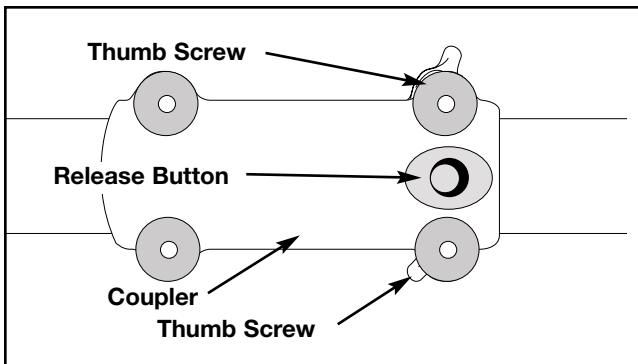


Fig. 11

Installing the Lower (Attachment) Boom

1. Loosen the wing screws. This will allow the lower boom to be inserted into the coupler (Fig. 12).
2. Remove the protective cover or hanger from the lower (attachment) boom. Push the lower (attachment) boom into the coupler (Fig. 13).
3. Before locking the release button into the coupler, rotate the boom 90 degrees; then rotate the lower boom back 90 degrees. This will ensure the drive shafts in both the upper and lower booms are engaged.
3. Locate and lock the release button into the hole in coupler (Fig. 11).
4. Check the sight hole to make sure both ends of the boom are together (Fig. 13). Tighten the wing screws before using the unit.

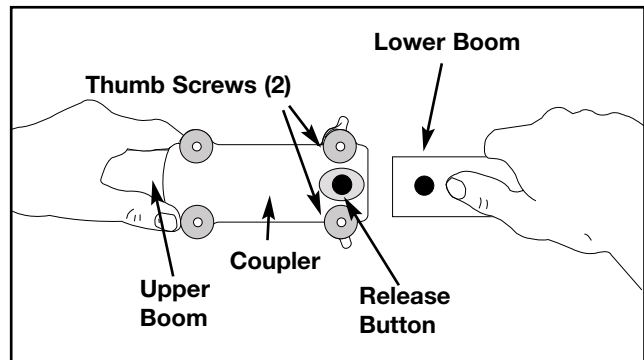


Fig. 12

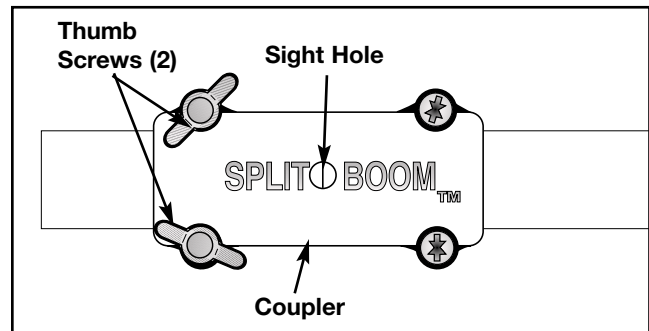


Fig. 13

OIL & FUEL INFORMATION

THIS ENGINE IS CERTIFIED TO OPERATE ON UNLEADED GAS ONLY.

NOTE: BE SURE TO READ THESE INSTRUCTIONS CAREFULLY BEFORE ATTEMPTING TO START OR OPERATE THIS UNIT. Using old or improper oil or fuel can cause engine damage. This type of damage will **void** the engine warranty.

RECOMMENDED OIL TYPE

Using the proper type and weight of oil in the crankcase is extremely important. Check the oil before each use and change the oil regularly. Failure to use the correct oil, or using dirty oil, can cause premature engine wear and failure.

Use high-quality **SAE 30 weight oil of API (American Petroleum Institute) service class SG, SF.**

ADDING OIL TO CRANKCASE - INITIAL USE

Your unit is supplied with one bottle of oil, which contains 100 ml (3.4 fluid oz) of SAE 30 SF, SG oil (Fig. 14).

1. Open the bottle of oil.
2. Install the funnel spout.

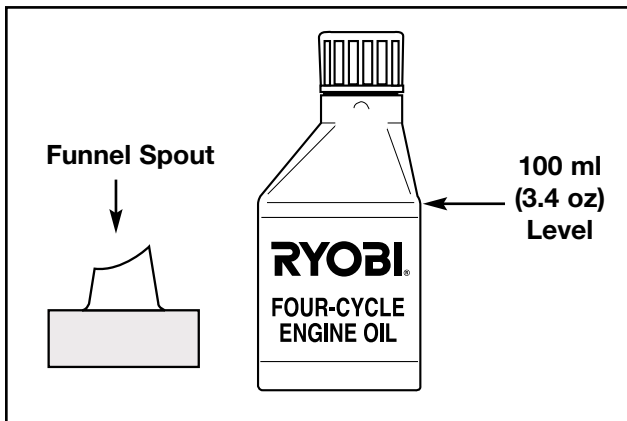


Fig. 14

3. Remove the oil fill plug / dipstick from the crankcase. Pour the entire bottle of oil into the crankcase (Fig. 15). Make sure the engine is level (Fig. 16) when the oil is poured into the crankcase.

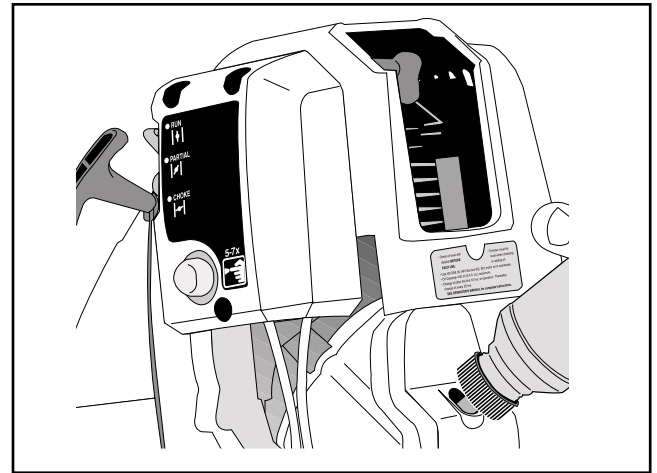


Fig. 15

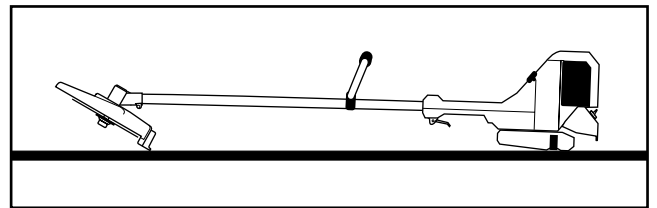


Fig. 16

4. Reinstall oil fill plug / dipstick into the crankcase.

NOTE: Save the bottle and funnel spout for future use.

NOTE: DO NOT ADD OIL TO THE FUEL.

CHECKING THE OIL

The importance of checking and maintaining the proper oil level in the crankcase cannot be overemphasized. Check the oil **BEFORE EACH USE** as follows:

1. Make sure the engine is stopped, level (Fig. 16) and is cool so the oil has had time to drain into the crankcase.
2. To keep dirt, grass clippings, etc. out of the engine, clean the area around the oil fill plug / dipstick before removing it.
3. Remove the oil fill plug / dipstick; wipe the oil off. Reinsert it into the crankcase. Thread the oil fill plug / dipstick into the crankcase.
4. Remove the oil fill plug / dipstick and check the oil level. The oil level should be up to the top of the dipstick (Fig. 17).
5. If the level is low, add the oil to the top of the dipstick (Fig. 17). Always check the level with the dipstick before adding more oil.

OIL & FUEL INFORMATION (Continued)

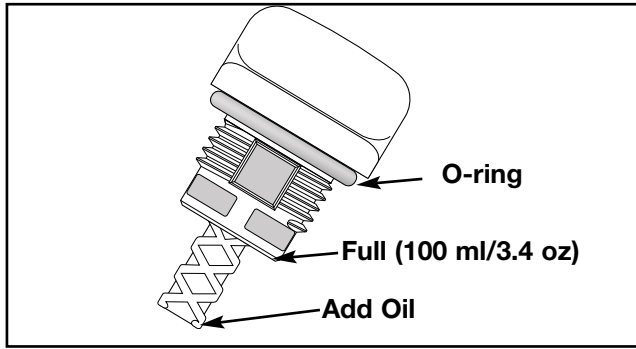


Fig. 17

CHANGING THE OIL

For a new engine, change the oil after the first **10 hours** of operation. Thereafter, change the oil after every **25 hours** or before storing the unit for an extended period of time.

Change the oil while the engine is still warm. The oil will flow freely and carry away more impurities.

Change the oil as follows:

1. Remove the oil fill plug / dipstick.
2. Pour the oil into a container by tipping the trimmer in a vertical position (Fig. 18). Be sure to allow ample time for complete drainage. Dispose of oil properly.

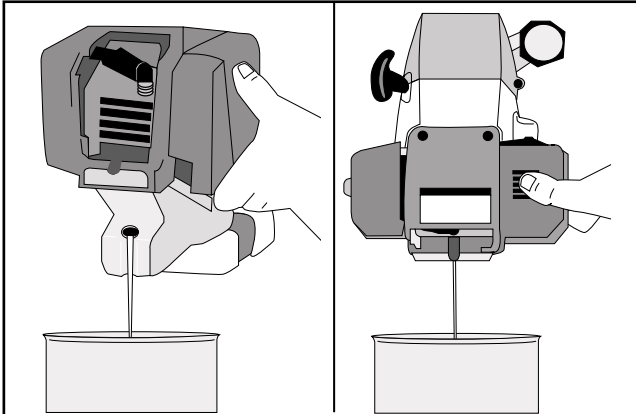


Fig. 18

3. Fill the crankcase, with new oil of the proper type, to the top of the dipstick. Use the bottle saved from the initial use.
4. Reinstall the oil fill plug / dipstick and tighten securely.

NOTE: Make sure the O-ring is in place on the oil fill plug when checking and changing the oil.

NOTE: To prevent extensive engine wear or damage, always maintain the proper oil level in the crankcase. Never operate the engine with oil level below the bottom of the dipstick.

RECOMMENDED FUEL TYPE

! WARNING

Fuel is extremely flammable and its vapors can explode if they are ignited. Always stop the engine and allow it to cool before filling the fuel tank. Do not smoke while filling the tank. Keep sparks and open flames away from the area.

Fill the fuel tank, using clean, fresh, unleaded gasoline.



NOTE: Alcohol blended fuel absorbs moisture (water). As little as 1% moisture in the fuel can cause fuel to separate and form acids when stored.

If this type of fuel must be used, use fresh fuel (**less than 60 days old**).

DEFINITION OF BLENDED FUELS

Today's fuels are often a blend of gasoline and one or more oxygenates such as ethanol, methanol or MTBE (ether).

USE OF BLENDED FUELS

If you choose to use a blended fuel or its use is unavoidable, the following precautions are recommended.


1. Always use fresh fuel.
2. Use the special additive GASOHOL GAS TREATMENT[®] (by Gold Eagle) **or an equivalent** to inhibit corrosion.
3. Drain tank and run engine dry before storing the unit.

USE OF FUEL ADDITIVES


The use of fuel additive such as STA-BIL[®] Gas Stabilizer or an equivalent, will inhibit corrosion and minimize the formation of gum deposit. Add (23 ml) 0.8 oz per gallon of fuel per instructions on container. **NEVER** add fuel additives directly to the unit's fuel tank. **Using a fuel additive can keep fuel fresh for up to six (6) months.**

STARTING/STOPPING INSTRUCTIONS


1. **CHECK THE OIL LEVEL IN THE CRANKCASE, AND PUT THE IGNITION SWITCH IN THE "RUN" (I) POSITION.** See Figure 20 for the location of the ignition switch.
2. **FULLY PRESS AND RELEASE THE PRIMER BULB 5 TO 7 TIMES.** See Fig. 21 for the primer bulb location.
3. **PLACE THE CHOKE LEVER IN THE FULL "CHOKE" POSITION.** See Fig. 21.

 **NOTE:** For a warm engine, go directly to Step 5 (place the choke lever directly in the "PARTIAL" choke position). See Fig. 21.

4. **WITH THE UNIT ON THE GROUND, PULL THE STARTER ROPE QUICKLY UNTIL THE ENGINE SOUNDS LIKE IT WANTS TO RUN (no more than 5 pulls).** See Fig. 22.
5. **PLACE THE CHOKE LEVER IN THE "PARTIAL" POSITION (Fig. 21). PULL THE STARTER ROPE QUICKLY UNTIL THE ENGINE STARTS (no more than 5 pulls).** See Fig. 22.
6. If the engine does not start, repeat steps 2 to 5.
7. **RUN THE ENGINE FOR 30 SECONDS, WITH THE THROTTLE LEVER FULLY SQUEEZED (Fig. 20), TO WARM UP. PLACE THE CHOKE LEVER IN THE "RUN" POSITION (Fig. 21).**

 **NOTE:** In colder weather, run the engine for 2 to 3 minutes to warm up.

8. **TO STOP THE ENGINE, PUT THE IGNITION SWITCH IN THE "STOP" (O) POSITION.** See Fig. 20.

 **NOTE:** When storing the unit, place the unit flat on the floor instead of hanging it by the guard or the cutting head (Fig. 19).

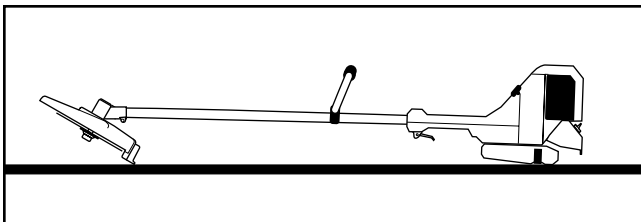


Fig. 19

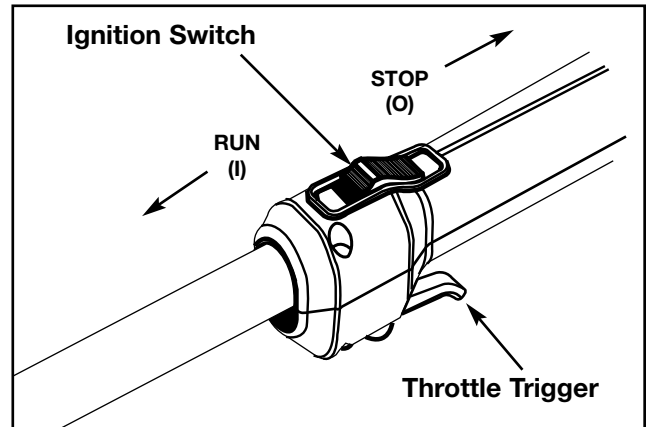


Fig. 20

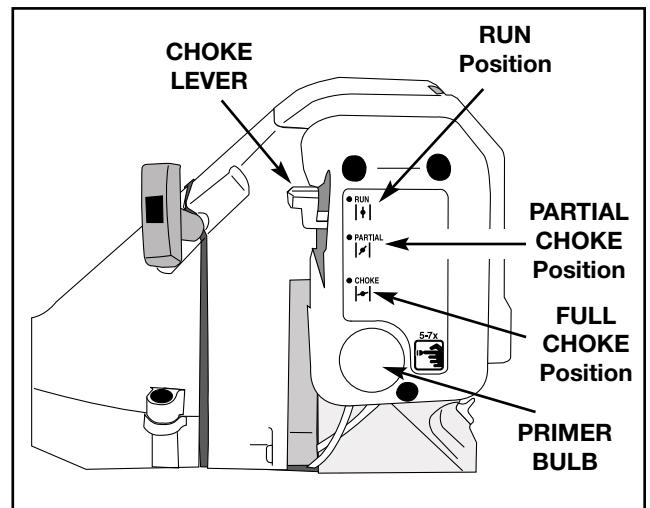


Fig. 21

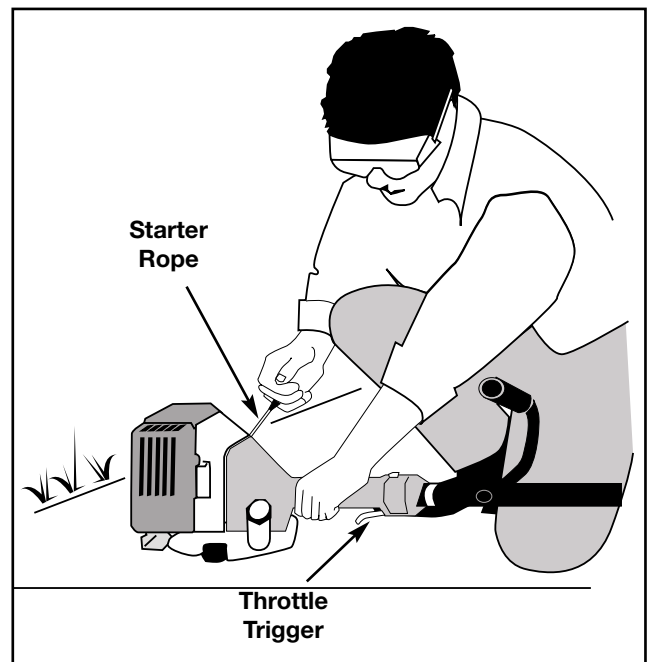


Fig. 22

OPERATING INSTRUCTIONS

ADJUSTING THE TRIMMING LINE LENGTH

Your trimmer is equipped with a bump head that allows the operator to release more trimming line without stopping the engine. To release additional line, lightly tap the trimming head on the ground (Fig. 23) while operating the trimmer at **high speed**.

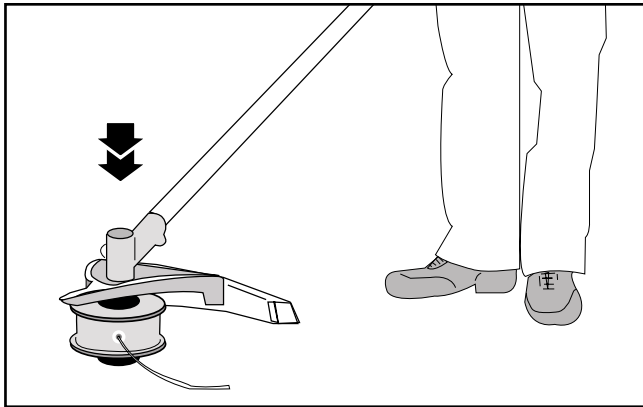


Fig. 23

NOTE: Always keep the trimming line fully extended. Line release becomes more difficult as cutting line becomes shorter.

Each time the head is bumped, about 25.4 mm (1 in) of trimming line is released. A blade in the line guard will cut the line to the proper length if excess line is released.

For best results, tap the head on bare ground or hard soil. If line release is attempted in tall grass, the engine may stall.

DECORATIVE TRIMMING

Decorative trimming is accomplished by removing all vegetation around trees, posts, fences, etc. Use a 30-degree angle when trimming with this method (Fig. 24).

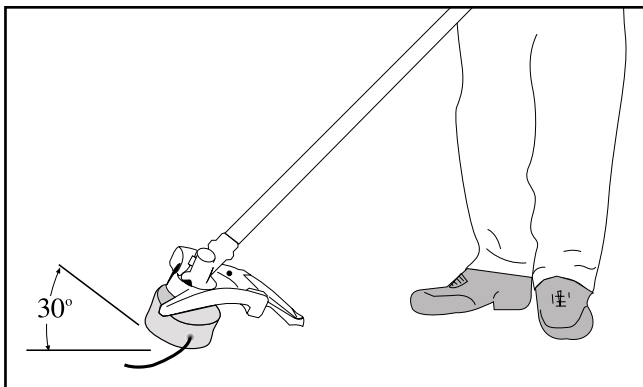


Fig. 24

USING THE BRUSH BLADE

1. Always maintain the proper stance when using the brush blade (Fig. 25).

Sharpening the Brush Blade



WARNING

Do not sharpen the brush blade. Sharpening the blade can cause the blade tip to break off while in use. This can result in severe personal injury to yourself or others.

The brush blade is designed with a second set of teeth, which can be used by removing the blade, turning it upside down, and reinstalling it.

If a crack is noticed, install a new blade from your authorized service dealer.



Fig. 25



NOTE: Do not use the brush blade for edging. Use the LE720r edger attachment.



WARNING

Keep the J-handle between the operator and cutting head at all times.

MAINTENANCE AND REPAIR INSTRUCTIONS

MAINTENANCE SCHEDULE

These required maintenance procedures should be performed at the frequency stated in the table. They should also be included as part of any seasonal tune-up.

FREQUENCY	MAINTENANCE REQUIRED	REFER TO:
Daily or Before Starting Engine	Fill fuel tank. Check oil level.	Page 11 Pages 10-11
Every 10 Hours	Change oil after initial use. Clean and re-oil air filter.	Page 11 Page 18
Every 25 Hours	Change oil.	Pages 10-11
Every 50 Hours	Check spark plug condition and gap. Check rocker arm to valve clearance. Check spark arrester screen.	Page 22 Page 22 Page 21

MAINTENANCE AND REPAIR INSTRUCTIONS (Continued)

LINE INSTALLATION

The trimming line may be replaced by two different methods - rewinding the existing reel or installing a prewound reel.

REWINDING THE EXISTING REEL

To rewind the existing reel you must:

1. Check for the correct line size.
2. Remove the existing reel and spring.
3. Wind the existing reel with the new line.
4. Reinstall the existing reel and spring.

The Correct Line to Use



WARNING

Always use genuine Monofilament® replacement line. Do not use metal-reinforced line.

It is very important to use the correct size line. A line with a diameter of 2.41 mm (.095 in) must be used. The engine may overheat and fail if you use a larger line.

Removing the Existing Reel

1. Hold the outer spool with one hand and unscrew the Bump Knob **clockwise** (Fig. 26). Inspect the captured bolt inside the Bump Knob to make sure it moves freely. Replace the Bump Knob if it is damaged.

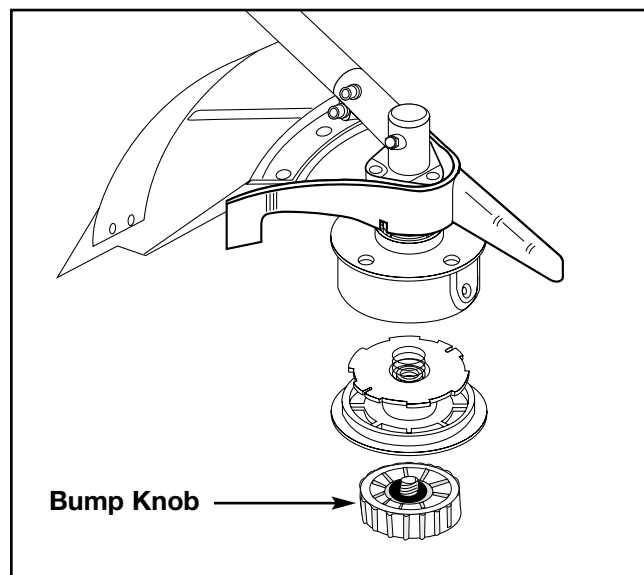


Fig. 26

2. Remove the inner reel (Fig. 27).

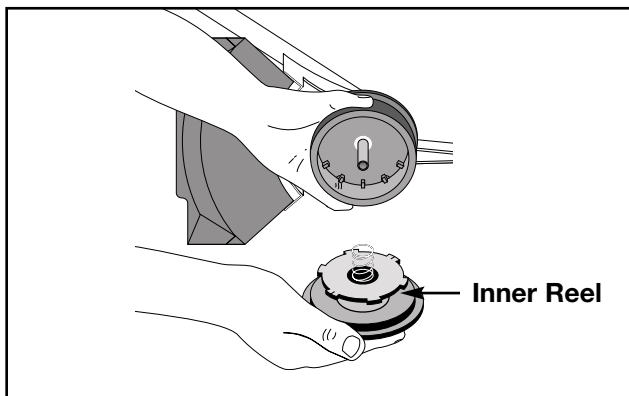


Fig. 27

3. Use a clean cloth to clean the inner surface of the outer spool (Fig. 28).



NOTE: Always clean the inner reel, outer spool, and shaft before reassembling the bump head.

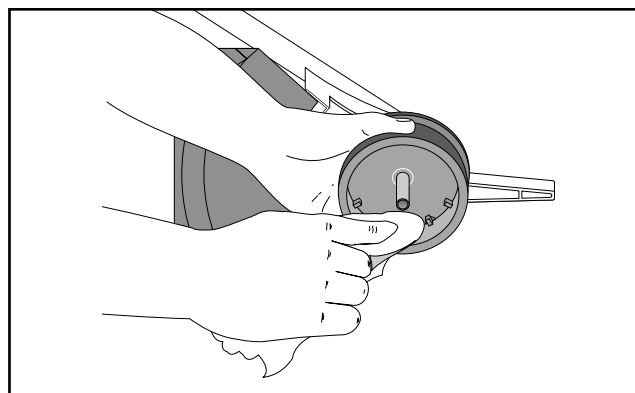


Fig. 28

4. Check the indexing teeth on the inner reel and outer spool for wear (Fig. 29). If necessary, deburr or replace the reel and spool.

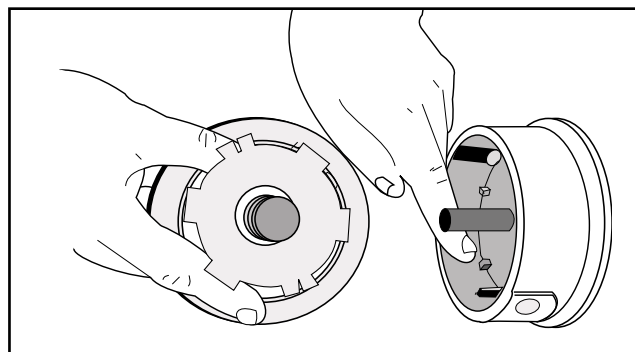


Fig. 29

MAINTENANCE AND REPAIR INSTRUCTIONS (Continued)

Winding the Existing Reel

1. Take approximately 12.7 m (50 ft) of new trimming line, loop it into two equal lengths. Insert each end of the line through one of the two holes in the inner reel (Fig. 30). Pull the line so that the loop is as small as possible.

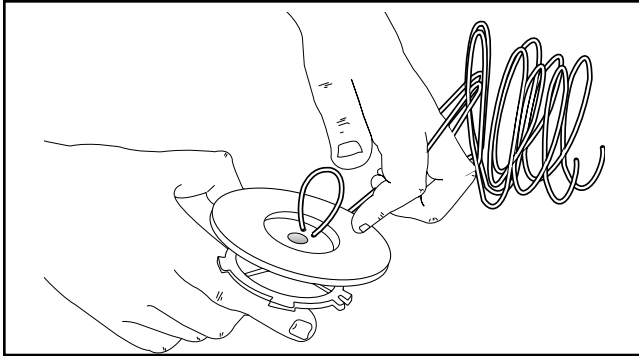




Fig. 30

2. Wind the lines, in even and tight layers, onto the reel (Fig. 31). Wind the line in the direction indicated on the inner reel. Be sure not to overlap the two ends of the line.

 NOTE: Placing your index finger between the two (2) lines while winding the line will prevent overlapping of the lines.

 NOTE: Failure to wind the line in the direction indicated will cause the Bump Head to operate incorrectly.

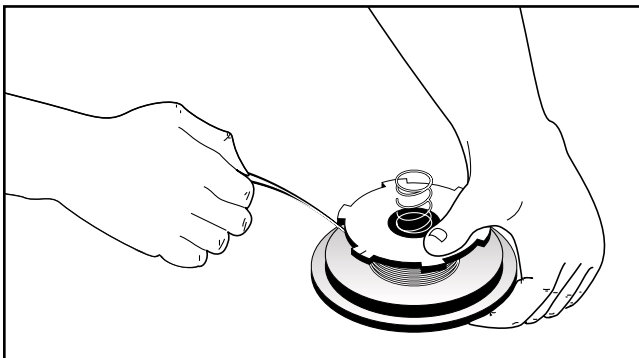


Fig. 31

3. Insert the ends of the line into the two holding slots (Fig. 32).

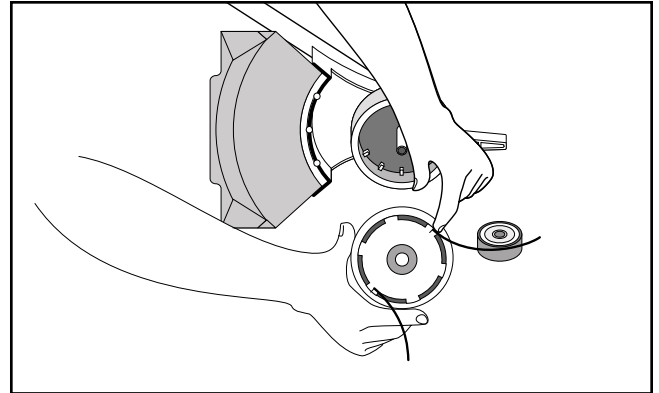



Fig. 32

Reinstalling the Reel

1. Insert the ends of the line through the eyelets in the outer spool (Fig. 33). Place the inner reel into the outer spool. Grasp the ends and pull firmly to release the line from the holding slots in the spool.

 NOTE: The spring must be in the center of the outer spool.

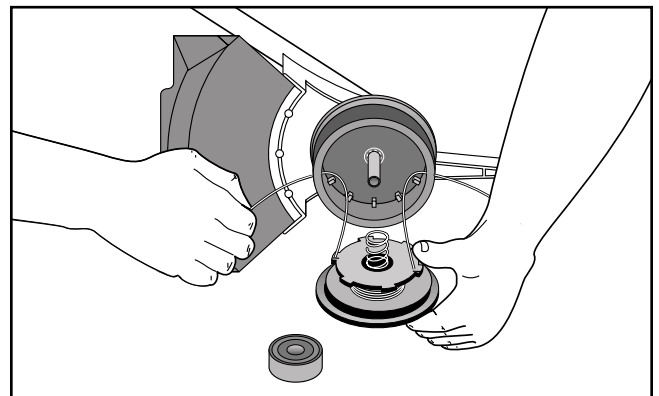


Fig. 33

2. Install the bump knob and tighten **counterclockwise** (see Fig. 26). Add a small amount of grease or oil to the threads on the Bump Knob bolt to make it easier to remove the Bump Knob the next time. Line installation is now complete.

INSTALLING A PREWOUND REEL

1. Follow the instructions in **THE CORRECT LINE TO USE**.
2. Follow the instructions in **REMOVING THE EXISTING REEL**.
3. Follow the instructions in **REINSTALLING THE REEL**.

MAINTENANCE AND REPAIR INSTRUCTIONS (Continued)

GEAR HOUSING SERVICE



WARNING

The gear housing gets very warm after long periods of use. Do not touch the housing until it has cooled.

1. Check the gear housing for lubricant **every 50 hours of operation**.
2. To check the lubricant level, remove the fill plug (Fig. 34). The lubricant should be up to the bottom edge of the check hole. If it is low, bring the level up with a good quality, lithium-based, #2, multi-purpose grease.
3. Reinstall the fill plug and tighten securely to prevent leakage.

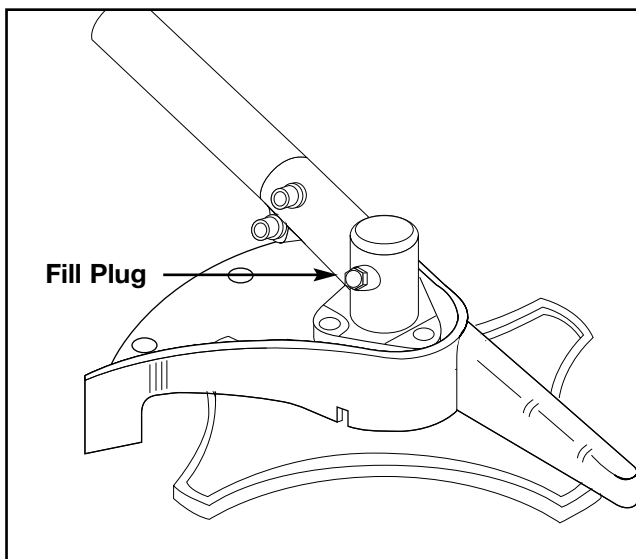


Fig. 34

MAINTENANCE AND REPAIR INSTRUCTIONS (Continued)

AIR FILTER MAINTENANCE

NOTE: **CLEAN AND RE-OIL THE AIR FILTER EVERY 10 HOURS OF OPERATION.** Your unit's air filter is one of the most important areas to maintain. If it is not maintained, you will **void** the warranty. Before cleaning, make sure the unit is turned off.

1. Remove the three (3) screws on the carburetor/air filter cover assembly. Remove the air filter cover (Fig. 35).

NOTE: The choke lever should be in the "PARTIAL" position to remove and install the air filter cover.

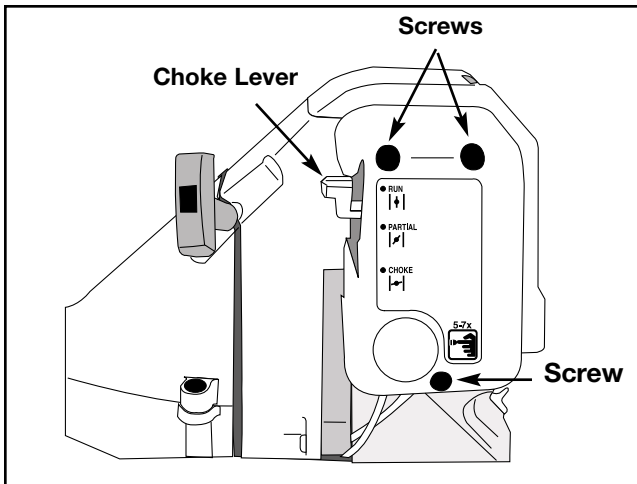


Fig. 35

2. Remove the air filter (Fig. 36).

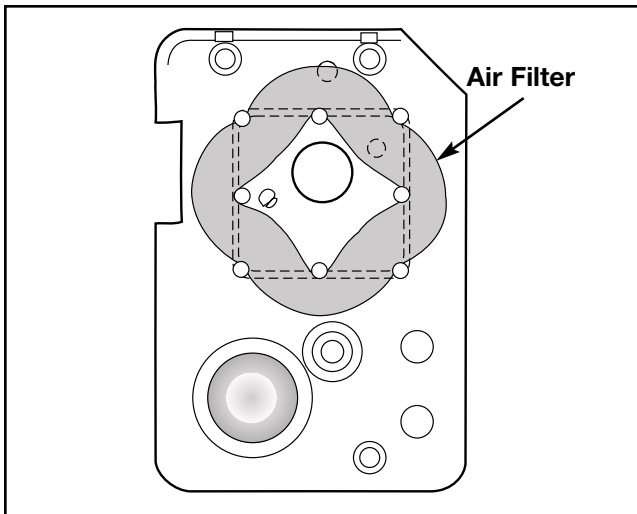


Fig. 36

3. Wash the filter in detergent and water (Fig. 37). Rinse the filter thoroughly and allow it to dry.

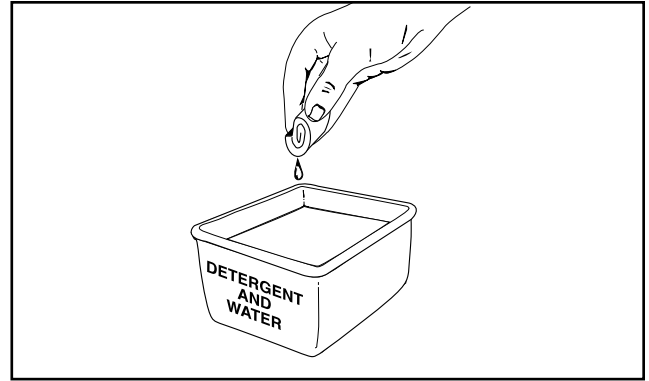


Fig. 37

4. Apply enough clean SAE 30 oil to saturate the filter (Fig. 38).

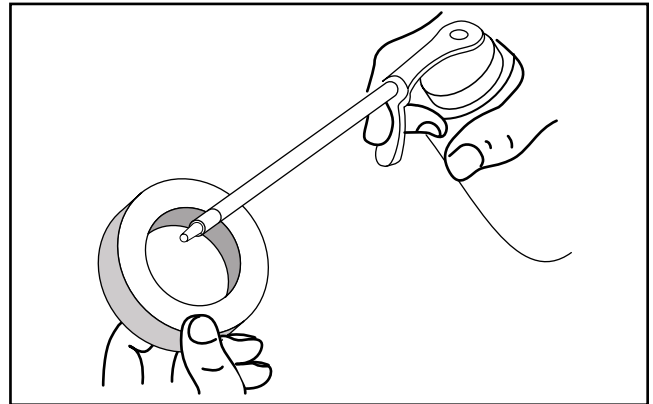


Fig. 38

5. Squeeze the filter to spread the oil (Fig. 39).

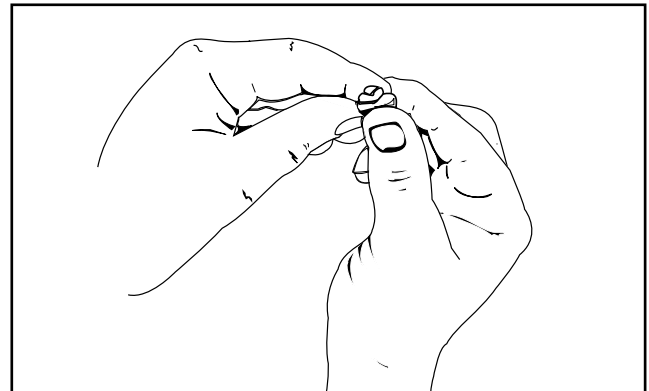


Fig. 39

6. Reinstall the filter (see Fig. 36), air filter cover and screws (see Fig. 35). Torque the screws to **2.8-3.4 N•m (25-30 in•lb)**.

NOTE: If the unit is operated **without** the air filter cover installed, you will **void** the warranty.

MAINTENANCE AND REPAIR INSTRUCTIONS (Continued)

CARBURETOR ADJUSTMENT

This unit is equipped with a diaphragm-type carburetor that has been carefully calibrated at the factory. In most cases, no further adjustment will be required.

NOTE: To meet the 1995 California emission regulations, the carburetor has adjustment needle limiter caps to restrict the amount of adjustment.

The condition of the air filter is important to the operation of the trimmer. A dirty air filter will restrict the air flow, which upsets the fuel-air mixture in the carburetor. The resulting symptoms are often mistaken for an out-of-adjustment carburetor. Therefore, **check the condition of the air filter before adjusting the carburetor.** Refer to **Air Filter Maintenance**.

If the following conditions are experienced, it may be necessary to adjust the carburetor:

- The engine will not idle
- The engine hesitates or stalls on acceleration
- The loss of engine power that is not corrected by cleaning the air filter, muffler, spark arrester screen or adjusting the valve clearance
- The engine operates in an erratic or fuel rich condition

The carburetor has three basic adjustments: the *idle speed*, *idle speed mixture* and *high speed mixture*.

NOTE: The string guard and line spool must be installed and the cutting line extended to its full cutting length when making carburetor adjustments.

Adjusting the Carburetor

1. Clean the air filter if it is dirty. Refer to **Air Filter Maintenance** in the enclosed operator's manual.
2. Make the initial settings with the engine stopped. These initial settings should allow you to start and warm up the trimmer before making the final adjustments.

Initial Idle Speed Setting: Back the idle speed screw (Fig. 40) **out (counterclockwise)** until it *does not* contact the carburetor throttle lever. Then turn the screw **in (clockwise)** until it *just begins to move* the throttle lever; then continue turning **2 full turns**.

3. **Initial High Speed Mixture and Idle Speed Mixture Settings:** Turn both the high speed and idle speed mixture needles halfway between the allowable movement of the limiter caps.

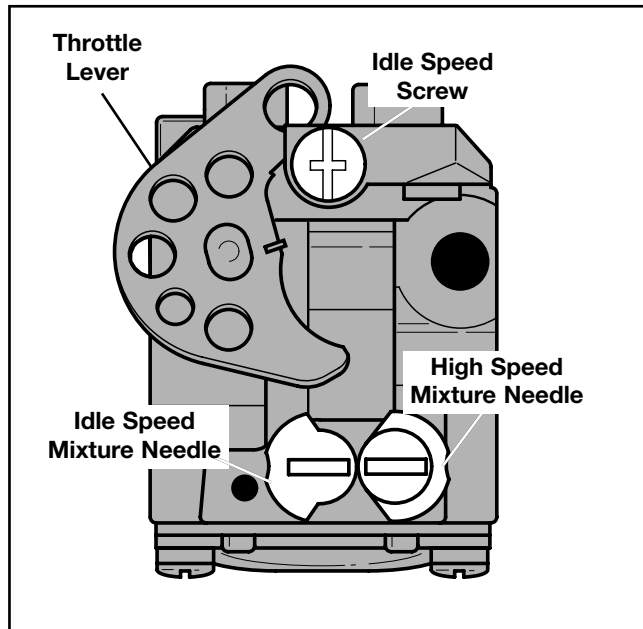


Fig. 40

4. Start the engine and let it run for three (3) to five (5) minutes with the throttle trigger fully squeezed.
5. Release the throttle trigger and let the engine idle. If the engine stops, turn the idle speed screw (Fig. 40) **n (clockwise) 1/8 turn** at a time (as required) until the engine idles.
6. **Final High Speed Mixture Needle Adjustment:**
 - a. While squeezing the throttle trigger fully, set the high speed mixture needle at the optimum setting (Fig. 41). See "Definition of Optimum Setting" on page 21.
7. **Final Idle Speed Mixture Needle Adjustment:** Adjust the idle speed mixture needle for smoothest engine idle using the following procedure. Do not squeeze the throttle trigger when adjusting the idle speed mixture needle.
 - a. Set the idle speed mixture needle at the optimum setting (Fig. 41). See "Definition of Optimum Setting".
 - b. Turn the idle speed mixture needle **out (counterclockwise)** to the rich side of optimum.

The engine should idle and accelerate smoothly.

MAINTENANCE AND REPAIR INSTRUCTIONS (Continued)

CARBURETOR ADJUSTMENT (Continued)

8. **Final Idle Speed Adjustment:** Adjust the idle speed by turning the idle speed screw **in (clockwise) or out (counterclockwise)** until the cutting head does not rotate. Do not squeeze the throttle trigger when adjusting the idle speed screw.

Definition of Optimum Setting for Idle Speed Mixture and High Speed Mixture Adjustments

Always set the idle speed mixture needle and high speed mixture needle at the optimum setting. To find the optimum setting, use the following instructions.

1. Turn the adjusting needle **out (counterclockwise)** from the preliminary setting until the engine speed decreases (rich). Note the position of the needle.
2. Turn the adjusting needle **in (clockwise)**. The engine speed may increase, then it will decrease as the needle is turned in (lean). Note the position of the needle.
3. Set the adjusting needle **midway** between the rich and lean settings, which is the highest engine speed (Fig. 41).

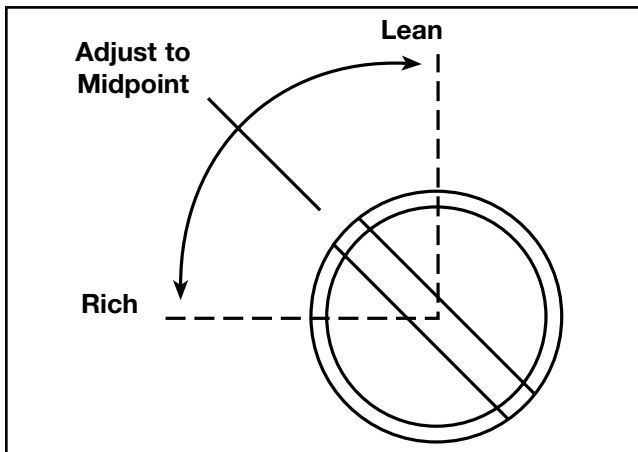


Fig. 41

NOTE: If the carburetor adjustments do not help the unit to run properly, contact your authorized service dealer.

NOTE: If the limiter caps are removed at any time, your unit will no longer meet the 1995 California emission regulations and you will **void** the warranty.

INSPECTING/CLEANING THE MUFFLER

The muffler should be removed **every 25 hours of operation** to inspect for excessive carbon build-up. Excessive deposits around the exhaust ports or exhaust holes will cause poor engine performance.

Use the following procedure to remove, inspect, clean and reinstall the muffler.

Removing Muffler

1. Remove the three (3) muffler mounting bolts from the cylinder (Fig. 42).

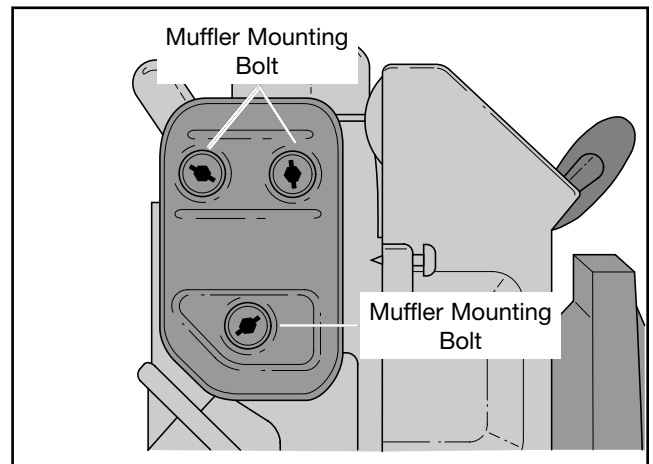


Fig. 42

2. Remove the muffler and muffler gasket. Discard the old gasket (Fig. 43).

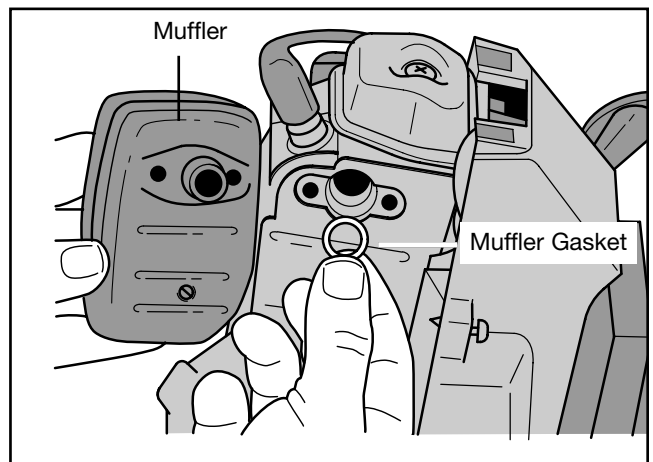


Fig. 43

MAINTENANCE AND REPAIR INSTRUCTIONS (Continued)

Inspection and Cleaning

Inspect the inlet port of the muffler and outlet port of the cylinder for excessive carbon build-up. Excessive deposits around the exhaust ports or exhaust holes will cause poor engine performance.

If carbon build-up cannot be cleaned, replace the muffler.

Inspect the muffler mounting holes for elongation. Replace the muffler if the holes are elongated.

Checking Spark Arrester Screen

This unit is equipped with a spark arrester screen. **Every 50 hours of operation**, check the spark arrester screen for debris and / or deposits.



WARNING

Make sure the muffler is cool before checking the spark arrester screen to prevent injury.

Check the spark arrester screen as follows:

1. Remove the screw (Fig. 44).
2. Remove the cover (Fig. 44).
3. Push the spark arrester screen out of the cover.

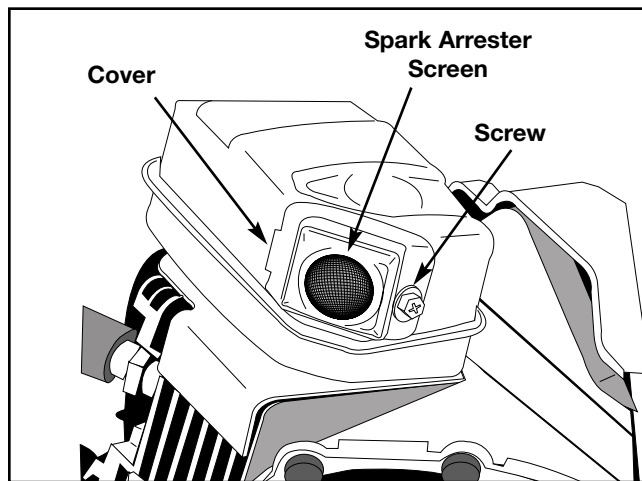


Fig. 44

4. Inspect the spark arrester screen.

If the screen is clean, reinstall the screen, cover and screw. If the screen is plugged, replace it.

5. Torque the screw to **15-20 in•lb (1.7-2.2 N•m)**.

Muffler Reassembly

1. Install a new muffler gasket and place the muffler baffle in place (Fig. 45).
2. Install the muffler with the three (3) mounting bolts. Install the lower bolt first to ease the installation of the top two (2) bolts (Fig. 46).



NOTE: The 5 mm nut must be held in the slot next to the spark plug before installing the top rear muffler bolt.



NOTE: Be careful not to crossthread the muffler mounting bolts.

Torque the muffler mounting bolts to **40-45 in•lb (4.5-5.0 N•m)**.

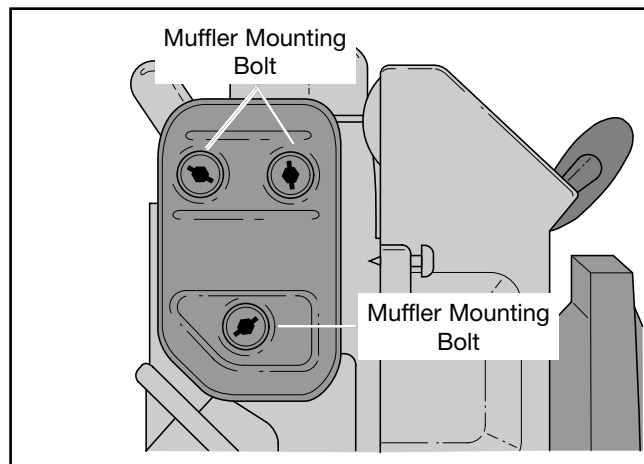


Fig. 45

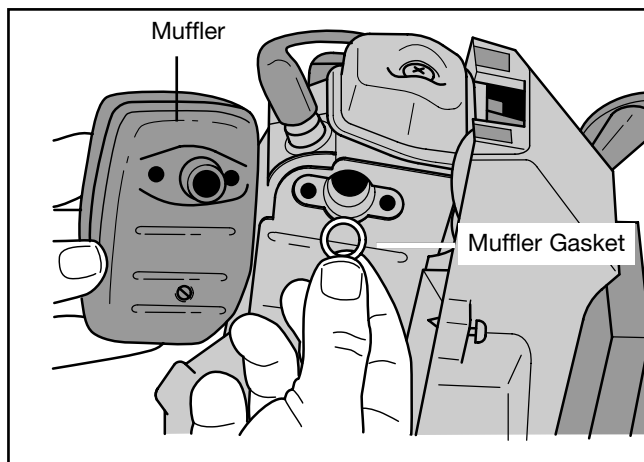



Fig. 46

MAINTENANCE AND REPAIR INSTRUCTIONS (Continued)

REPLACING THE SPARK PLUG

Use a Champion RDZ19H spark plug. Correct air gap is **.025 in (0.635 mm)**. Remove plug after **every 50 hours of operation** and check its condition. Allow the engine to cool before removing the spark plug.

1. Stop the engine and pull the wire off of the spark plug.
2. Clean around the spark plug and remove it from the cylinder head.

 NOTE: Replace a cracked, fouled or dirty spark plug. Do not sand blast, scrape or clean electrodes because the engine could be damaged by grit entering the cylinder.

3. Set the air gap at **.025 in (0.635 mm)** using a *wire feeler gauge* (Fig. 47). Install a correctly gapped spark plug into the cylinder head. Torque to **100-110 in•lb (11.3-12.3 N•m)**.

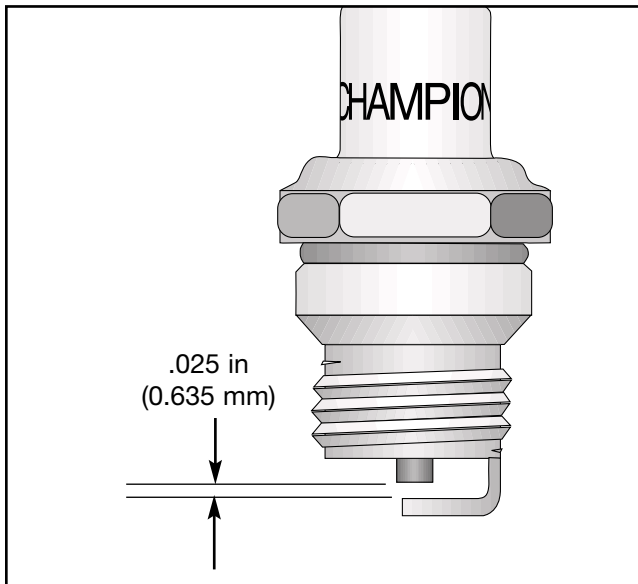



Fig. 47

CHECKING / ADJUSTING VALVE TO ROCKER ARM CLEARANCE

Every 50 hours of operation, remove the rocker arm cover and check the valve to rocker arm clearance, using a *flat feeler gauge*.

 NOTE: The engine must be cold when checking or adjusting the clearance.

Check / adjust the clearance as follows:

1. Remove the four (4) screws from the engine cover (Figs. 48 and 49).
2. Remove the engine cover.

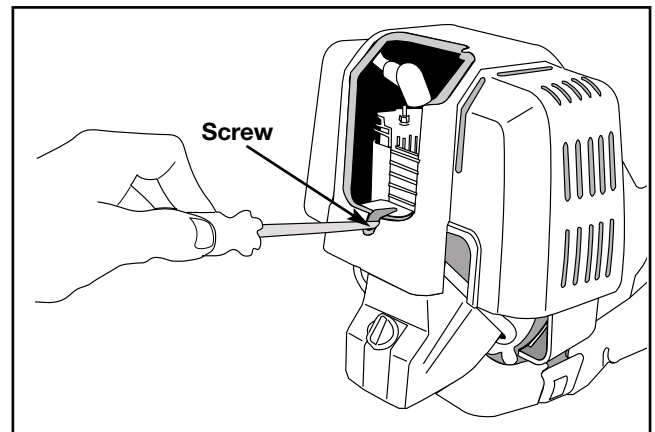


Fig. 48

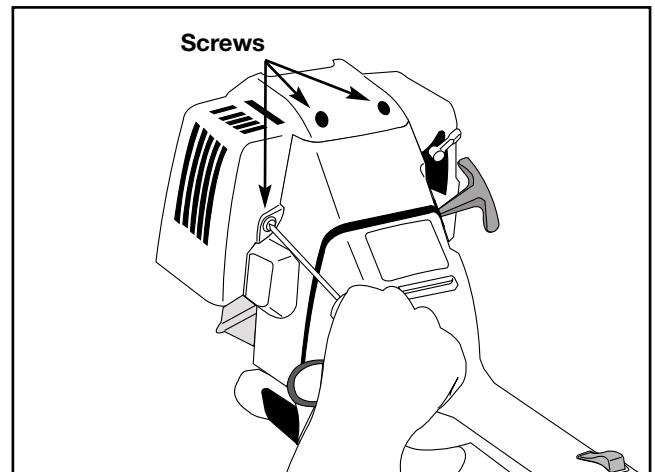


Fig. 49

MAINTENANCE AND REPAIR INSTRUCTIONS (Continued)

- Remove the rocker arm cover and gasket, using a T-25 Torx® screwdriver (Fig. 50).

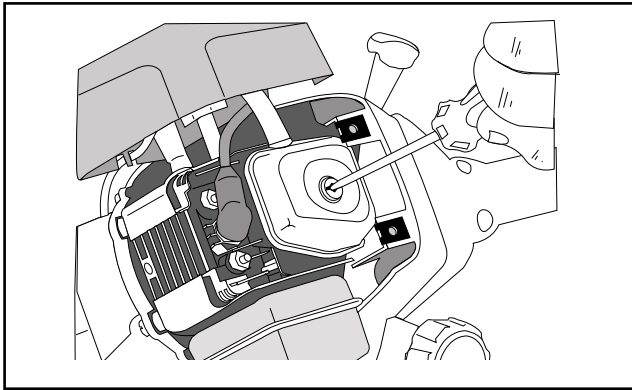


Fig. 50

- Position the crankshaft so the piston is at the top of the compression stroke (the rocker arms are free and loose).
- Measure the clearance between the valve stems and rocker arms, using a flat feeler gauge (Fig. 51).

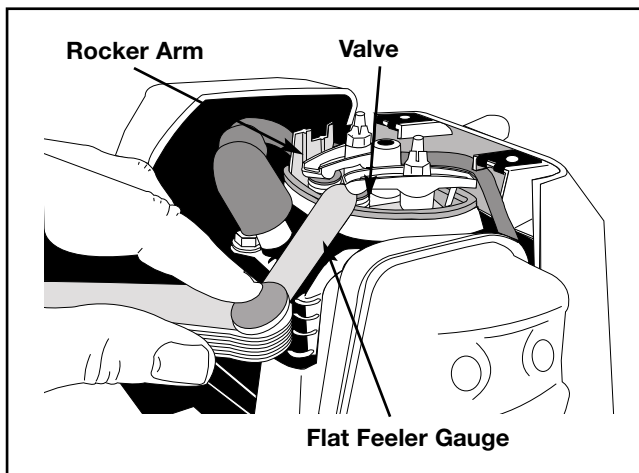


Fig. 51

The recommended valve to rocker arm clearance for both the intake and exhaust is **003-.006 in. (.076 mm-.152 mm)**.

- If the clearance is not within specification, adjust as follows:

- Turn the adjusting nut (Fig. 52), using an 5/16 in (8 mm) wrench or nut driver.

To increase the rocker arm to valve clearance, turn the adjusting nut **counterclockwise**.

To decrease the rocker arm to valve clearance, turn the adjusting nut **clockwise**.

- Recheck the clearance with a *flat feeler gauge* and readjust as necessary (Fig. 49).
- Reinstall the rocker arm cover using a **new gasket**. Torque the rocker arm cover screw to **20-30 in•lb (2.2-3.4 N•m)** (Fig. 50).

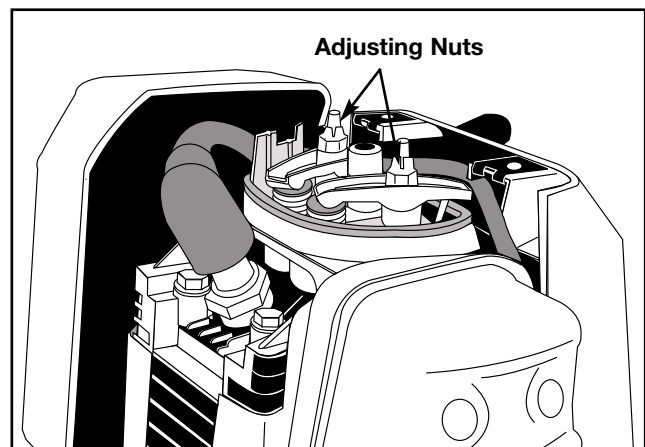


Fig. 52

- Reinstall the engine cover and screws (see Figs. 48 and 49 on page 22).

Torque the top screws to **10-12 in•lb (1.1-1.3 N•m)**.
Torque the front screw to **10-15 in•lb (1.1-1.7 N•m)**.
Torque the rear screw with washer to **25-30 in•lb (2.8-3.4 N•m)**.

CLEANING AND STORAGE



WARNING

Always turn off your trimmer before you clean or perform any maintenance on it.

Cleaning

Use a small brush to clean off the outside of the trimmer. Do not use strong detergents on plastic housing or handle. They can be damaged by household cleaners that contain aromatic oils such as pine and lemon, and by solvents such as kerosene. Wipe off any moisture with a soft cloth.

Storage

If the trimmer will be stored for an extended period of time, use the following storage procedure.

1. Drain all fuel from the fuel tank. Do not use fuel that has been stored for more than 60 days.
 2. Start the engine and allow it to run until it stalls. This ensures that all fuel has been drained from the carburetor.
 3. Drain the oil from the crankcase and add fresh oil. Pull the starter rope a few times to lubricate the engine.
 4. Thoroughly clean the unit and inspect for any loose or damaged parts. Repair or replace damaged parts and tighten loose screws, nuts or bolts.
- The unit is now ready for storage.
5. Store the trimmer in a dry, well-ventilated area, and hang with the cutting head up or place the unit flat on the floor (Fig. 53).

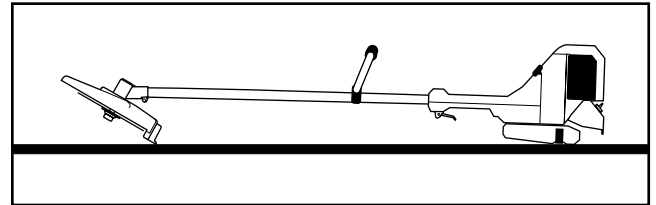


Fig. 53

SPECIFICATIONS

ENGINE

Engine Type	Air-Cooled, 4-Cycle
Displacement	26.2 cc
Bore	32 mm (1.30 in)
Stroke	32.6 mm (1.3 in)
Clutch Type	Centrifugal
Operating RPM	7500 rpm
Ignition Type	Electronic
Ignition Switch	Slide Switch
Spark Plug	Champion RDZ19H
Spark Plug Gap	0.635 mm (.025 in)
Fuel Tank Capacity	450 ml (16 fl oz)
Oil Capacity	100 ml (3.4 fl oz)

DRIVE SHAFT & CUTTING HEAD

Drive Shaft	Steel, 1/4"
Drive Shaft Housing	Steel Tube, Split Boom®
Operating Weight	7.78 kg (17.2 lbs)
Throttle Control	Finger-Tip Trigger
Shoulder Strap with Pad	Standard
Line Spool Diameter	102 mm (4 in)
Trimming Line Diameter	2.41 mm (.095 in)
Cutting Path Diameter	440 mm (18 in)

COLD TORQUE SPECIFICATIONS

Spark Plug	11.3-12.3 N•m (100-110 in•lb)
Rocker Arm Cover Screw	2.2-3.4 N•m (20-30 in•lb)
Brush Blade Lock Nut	25.3-28.1 N•m (225-250 in•lb)
Engine Cover Screws (Top)	1.1-1.3 N•m (10-12 in•lb)
Engine Cover Screw (Front)	1.1-1.7 N•m (10-15 in•lb)
Engine Cover Screw (Rear)	2.8-3.4 N•m (25-30 in•lb)
Air Filter Cover Screws	2.8-3.4 N•m (25-30 in•lb)
Spark Arrester	
Screen Screw	1.7-2.2 N•m (15-20 in•lb)

TROUBLESHOOTING

PROBLEM	CAUSE	ACTION
Engine Is Difficult to Start or Will Not Start	Ignition switch is "STOP (O)" Primer bulb wasn't pushed enough Engine is not choked Empty fuel tank Engine flooded Valve clearance is out of adjustment Plugged spark arrester screen Spark plug fouled	Turn switch to "RUN (I)" Press primer bulb fully and slowly 5-7 times Use starting procedure, USING "FULL" CHOKE" (Page 9) Fill fuel tank Use starting procedure, USING "PARTIAL" CHOKE (Page 9) Use adjust valve to rocker arm clearance procedure (Pages 18 and 19) Clean or replace spark arrester screen (Page 19) Clean spark plug and regap or replace
Engine Will Not Idle	Air filter is plugged Carburetor misadjusted	Clean and re-oil air filter or replace (Page 15) Adjust carburetor (Pages 16-17)
Engine Will Not Accelerate	Carburetor misadjusted	Adjust carburetor (Pages 16-17)
Engine Lacks Power or Stalls When Cutting	Dirty air filter Valve clearance is out of adjustment Dirty spark arrester screen Carburetor misadjusted Not enough fuel in fuel tank	Clean and re-oil air filter or replace (Page 15) Use adjust valve to rocker arm clearance procedure (Pages 18-19) Clean or replace screen Adjust carburetor (Pages 16-17) Fill fuel tank
Cutting Head Will Not Advance Line	Cutting head out of line Inner reel bound up Cutting head dirty Indexing teeth worn or burred Line welded Line twisted when refilled Not enough line is exposed	Refill with new cutting line (Pages 13-14) Replace inner reel (Pages 13-14) Clean inner reel and outer spool (Pages 13-14) Replace inner reel and outer spool (Pages 13-14) Disassemble cutting head, remove the welded section and rewind the line Disassemble cutting head and rewind reel Push the Bump Knob and pull out the line until a minimum of 102 mm (4 in) is outside of the cutting head
Starter Rope Is Difficult to Pull or Engine Locks	Oil accumulated in combustion chamber Unit operated with low or no oil	Remove the spark plug Drain the oil from the spark plug hole Pull the starter rope several times to remove any excess oil from the cylinder Clean the spark plug and wipe off excess oil with a dry cloth Reinstall the spark plug Check oil before starting

If further assistance is required, contact your local authorized service dealer or call 1-800-345-8746.

CALIFORNIA EMISSION CONTROL WARRANTY STATEMENT

YOUR WARRANTY RIGHTS AND OBLIGATIONS

The California Air Resources Board and Ryobi Outdoor Products (ROP), are pleased to explain the **emission control system warranty** on your 1995 and later lawn and garden equipment engine. In California, new lawn and garden equipment engines must be designed, built and equipped to meet the State's stringent anti-smog standards. ROP must warrant the emission control system on your lawn and garden equipment engine for the periods of time listed below provided there has been no abuse, neglect or improper maintenance of your lawn and garden equipment engine.

Your emission control system may include parts such as the carburetor or fuel injection system, the ignition system, and catalytic converter. Also included may be hoses, belts, connectors and other emission-related assemblies.

Where a warrantable condition exists, ROP will repair your lawn and garden equipment engine at no cost to you including diagnosis, parts and labor.

The 1995 and later utility and lawn and garden equipment engines are warranted for two years. If any emission-related part on your engine is defective, the part will be repaired or replaced by ROP.

OWNER'S WARRANTY RESPONSIBILITIES:

- As the lawn and garden equipment engine owner, you are responsible for the performance of the required maintenance listed in your operator's manual. ROP recommends that you retain all receipts covering maintenance on your lawn and garden equipment engine, but ROP cannot deny warranty solely for the lack of receipts or for your failure to ensure the performance of all scheduled maintenance.
- As the lawn and garden equipment engine owner, you should however be aware that ROP may deny you warranty coverage if your lawn and garden equipment engine or a part has failed due to abuse, neglect, improper maintenance or unapproved modifications.
- You are responsible for presenting your lawn and garden equipment engine to an Ryobi Authorized Service Center as soon as a problem exists. The warranty repairs should be completed in a reasonable amount of time, not to exceed 30 days.

If you have any questions regarding your warranty rights and responsibilities, you should call 1-800-345-8746.

MANUFACTURER'S WARRANTY COVERAGE:

- The warranty period begins on the date the engine or equipment is delivered to the retail purchaser.
- The manufacturer warrants to the initial owner and each subsequent purchaser, that the engine is free from defects in material and workmanship which cause the failure of a warranted part for a period of two years.
- Repair or replacement of warranted part will be performed at no charge to the owner at an Authorized Ryobi Service Center. For the nearest location, please contact Ryobi at: 1-800-345-8746.
- Any warranted part which is not scheduled for replacement, as required maintenance which is scheduled only for regular inspection to the effect of "Repair or replace as necessary" is warranted for the warranty period. Any warranted part which is scheduled for replacement as required maintenance will be warranted for the period of time up to the first scheduled replacement point for that part.
- The owner will not be charged for diagnostic labor which leads to the determination that a warranted part is defective, if the diagnostic work is performed at an Authorized Ryobi Service Center.
- The manufacturer is liable for damages to other engine components caused by the failure of a warranted part still under warranty.
- Failures caused by abuse, neglect or improper maintenance are not covered under warranty.
- The use of add-on or modified parts can be grounds for disallowing a warranty claim. The manufacturer is not liable to cover failures or warranted parts caused by the use of add-on or modified parts.
- In order to file a claim, go to your nearest Authorized Ryobi Service Center. Warranty services or repairs will be provided at all Authorized Ryobi Service Centers.
- Any manufacturer approved replacement part may be used in the performance of any warranty maintenance or repair of emission related parts and will be provided without charge to the owner. Any replacement part that is equivalent in performance or durability may be used in non-warranty maintenance or repair and will not reduce the warranty obligations of the manufacturer.
- The following components are included in the emission related warranty of the engine, air filter, carburetor, primer, fuel lines, fuel pick up/fuel filter, ignition module, spark plug and muffler.

Limited Two-Year Warranty

RYOBI AMERICA CORP. warrants each new RYOBI Product for two (2) years according to the following terms.

This warranty extends to the original retail purchaser only and commences on the date of original retail purchase.

Any part of the RYOBI Product manufactured or supplied by RYOBI and found in the reasonable judgement of RYOBI to be defective in material or workmanship will be repaired or replaced by an authorized RYOBI service dealer without charge for parts and labor.

The RYOBI Product including any defective part must be returned to an authorized service dealer within the warranty period. The expense of delivering the RYOBI Product to the dealer for warranty work and the expense of returning it back to the owner after repair or replacement will be paid for by the owner. RYOBI's responsibility in respect to claims is limited to making the required repairs or replacements and no claim of breach of warranty shall be cause for cancellation or rescission of the contract of sale of any RYOBI Product. Proof of purchase will be required by the dealer to substantiate any warranty claim. All warranty work must be performed by an authorized RYOBI service dealer.

This warranty is limited to ninety (90) days from the date of original retail purchase for any RYOBI Product that is used for rental or commercial purposes, or any other income-producing purpose.

This warranty does not cover any RYOBI Product that has been subject to misuse, neglect, negligence, or accident, or that has been operated in any way contrary to the operating instructions as specified in the RYOBI Operator's Manual. This warranty does not apply to any damage to the RYOBI Product that is the result of improper maintenance or to any RYOBI Product that has been altered or modified so as to adversely affect the products operation, performance or durability or that has been altered or modified so as to change its intended use. The warranty does not extend to repairs made necessary by normal wear or by the use of parts or accessories which are either incompatible with the RYOBI Product or adversely affect its operation, performance or durability.

In addition, this warranty does not cover:

- A. Tune-ups - Spark Plugs, Carburetor Adjustments, Filters
- B. Wear items - Bump Knobs, Outer Spools, Cutting Line, Inner Reels, Starter Pulley, Starter Ropes

RYOBI reserves the right to change or improve the design of any RYOBI Product

without assuming any obligation to modify any product previously manufactured. ALL IMPLIED WARRANTIES ARE LIMITED IN DURATION TO THE TWO (2) YEAR WARRANTY PERIOD OR NINETY (90) DAYS FOR PRODUCTS USED FOR ANY COMMERCIAL PURPOSE. ACCORDINGLY, ANY SUCH IMPLIED WARRANTIES INCLUDING MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR OTHERWISE, ARE DISCLAIMED IN THEIR ENTIRETY AFTER THE EXPIRATION OF THE APPROPRIATE TWO-YEAR OR NINETY DAY WARRANTY PERIOD. RYOBI'S OBLIGATION UNDER THIS WARRANTY, IS STRICTLY AND EXCLUSIVELY LIMITED TO THE REPAIR OR REPLACEMENT OF DEFECTIVE PARTS, AND ROP DOES NOT ASSUME OR AUTHORIZE ANYONE TO ASSUME FOR THEM ANY OTHER OBLIGATION. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

RYOBI ASSUMES NO RESPONSIBILITY FOR INCIDENTAL, CONSEQUENTIAL OR OTHER DAMAGES INCLUDING, BUT NOT LIMITED TO EXPENSE OF RETURNING THE RYOBI PRODUCT TO AN AUTHORIZED SERVICE DEALER AND EXPENSE OF DELIVERING IT BACK TO THE OWNER, MECHANIC'S TRAVEL TIME, TELEPHONE OR TELEGRAM CHARGES, RENTAL OF A LIKE PRODUCT DURING THE TIME WARRANTY SERVICE IS BEING PERFORMED, TRAVEL, LOSS OR DAMAGE TO PERSONAL PROPERTY, LOSS OF REVENUE, LOSS OF USE OF THE PRODUCT, LOSS OF TIME, OR INCONVENIENCE. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

This warranty applies to all RYOBI Products manufactured by RYOBI and sold in the United States and Canada.

To locate your nearest service dealer dial 1-800-345-8746 in the United States or 1-800-265-6778 in Canada.

RYOBI®

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